"Clean" version of amended the claims. This is recommended for use by the Office in prosecution and for printing.

Claims

1. (amended) An electrical drive system for the synchronised adjustment of a plurality of rotatable axles or further, also linearly movable functional parts of devices and machines, in particular printing machines, in terms of their position, speed or acceleration, with a plurality of drive units controlled using computer assistance, which are connected to one or more functional parts for their adjustment, and with a plurality of drive networks, which each have a plurality of the drive units as network nodes and are allocated to some or a group of the functional parts, wherein, inside at least one of the drive networks, its nodes or drive units are arranged in accordance with the master/slave principle and are respectively connected to one another in a ring structure through a communication system, and at least one node of a drive network is coupled in a ring structure with one node of another drive network, likewise in accordance with the master/slave principle, through inter-communication system.

2. (amended) An electrical drive system for the synchronised adjustment of a plurality of rotatable axles or further, also linearly movable functional parts of devices and machines, in particular printing machines, in terms of their position, speed or acceleration, with a plurality of drive units controlled using computer assistance, which are connected to one or more functional parts for their adjustment, and with a plurality of drive networks, which each have a plurality of the drive units as network nodes and are allocated to some or a group of the functional parts, wherein, inside at least one of the

drive networks, its nodes or drive units are communicatively coupled with one another, and with a plurality of inter-communication networks, whose nodes are also communicatively coupled with one another and simultaneously belong to different drive networks, and furthermore with a multi-link controller, which is provided with communication components, each as respective nodes of the intercommunication networks, and is designed using program and/or circuit technology for their coupling with one another.

3.(amended) A drive system according to Claim 2, wherein the drive and intercommunication networks are arranged using a preferably serial ring structure and are organised in accordance with the master/slave principle.

4.(amended) A drive system according to Claim 3, wherein the communication component is designed in the scope of the master/slave principle as a communication master of the respective intercommunication network.

5.(amended) A drive system according to Claim 2, wherein the communication components are produced with serial interfaces and are controlled by at least one processor.

6.(amended) A drive system according to Claim 5, wherein the communication component is provided with functions of a communication manager.

7.(amended) A drive system according to Claim 6, wherein the plurality of intercommunication networks are arranged according to a star structure with the multi-link controller as the star centre.

8.(amended) A drive system according to Claim 7, wherein at least one intercommunication network is designed for data transmission synchronously with a clock of the multi-link controller.

9. (amended) A drive system according to Claim 8, wherein in at least one of the intercommunication networks, at least one of the nodes is configured using a master for other intercommunication networks, and their communication control signals are delivered to the other intercommunication networks by the multi-link controller.

10. (amended) A drive system according to claim 9 wherein setpoint position, speed and acceleration values are distributed to one or more of the drive networks via the inter-communication system or network.

11. (amended) A drive system according to Claim 10, wherein the control information contains logical allocation of one or more drive units to one of the networks.

12. (amended) A drive system according to Claim 11, wherein a transfer that at least partially controls the intercommunication networks takes place via the multi-link controller.

13. (amended) A drive system according to Claim 12, wherein all information for the allocation of one of the drive units to a respective drive network is transferred via the multi-link controller to each intercommunication network.

14. (amended) A drive system according to Claim 13, wherein at least a plurality of the drive networks are designed, using program and/or circuit technology, in accordance with the master/slave principle, respectively with a communication master which a forms a node of an intercommunication network, and the multi-link controller has all drive units of this intercommunication network each respectively allocated via it to one of the communication masters.

15. (amended) A drive system according to Claim 14, wherein a node of at least one of the intercommunication networks is both as a communication master for this intercommunication network, for its individual operation without coupling with the multi-link controller, and as a communication slave for coupling with the multi-link controller that operates as a communication master.

16. (amended) A drive system according to claim 15 wherein the multi-link controller further comprises a plurality of communication components respectively configured as communication masters for external networks, and a processor that controls them.

17. (amended) A drive system according to claim 16 wherein the multi-link controller includes communication interfaces designed for synchronous and serial data transmission.

18. (amended) A drive system according to claim 16 wherein the multi-link controller includes a processor provided with program code for the distribution, routing of data from one communication interface to another.

one communication interface with one of the networks, in particular the intercommunication network.

24. (amended) A drive system according to claim 23 wherein the synchronisation control unit has the processor also provided with a second communication interface and a drive communication module that can be coupled with it and is designed for controlling a data and/or command flow via the second communication interface with one of the drive networks.

25. (amended) A drive system according to claim 24 wherein the synchronisation control unit has a master axis module designed for access to the two communication interfaces for the purpose of bidirectional data and/or command interchange between two networks.

26. (amended) A drive system according to claim 25 wherein the synchronisation control unit has a processor also provided with a third communication interface, with which the drive communication module and/or data distribution module for organising a command and/or data flow between one of the drive and/or intercommunication networks, on the one hand, and a further network, in particular control network with asynchronous data interchange, on the other hand, can be coupled.

27. (amended) A drive system according to claim 26 wherein the synchronisation control unit has a drive communication module designed for access to the second and third communication interfaces for the purpose of bidirectional data and/or command interchange between two networks.

28. (amended) A drive system according to claim 26 wherein the synchronisation control unit has a data distribution module designed for access to at least two of the first, second and third communication interfaces for the purpose of bidirectional data and/or command interchange between at least two of the different networks.

29. (amended) A drive system according to claim 28 wherein the synchronisation control unit has a processor provided with one or more modules that regulate and/or control the first, second and third communication interfaces, for communication management via these communication interfaces.

30. (amended) A drive system according to claim 29 wherein the synchronisation control unit has a data distribution module which comprises filtering or other processing functions for data and commands from at least one communication interface for at least one other communication interface.